WHAT IS CLAIMED IS:

Sub B2

1. A communication system, comprising:

a reception angle estimator configured to estimate a reception angle of a received signal;

a determining part configured to determine a Quality of Service (QoS) parameter according to a required service quality;

a weighted vector calculator configured to calculate a weighted vector using the estimated reception angle and the QoS parameter; and

a transmittor configured to apply the weighted vector to the signal to be transmitted.

2. The system of claim 1, wherein the QoS parameter is determined in accordance with a QoS required for a subscriber generating the received signal.

3. The system of claim 2, wherein the QoS parameter is allocated such that an undesired signal has a gain smaller than a desired signal.

4. The system of claim 3, wherein the QoS is adjusted by comparing respective subscriber QoS to a communication quality.

5. The system of claim 1, wherein the weighted vector is calculated by changing a number of signal vectors corresponding to undesired signals and desired signals.

6. The system of claim 5, wherein the weighted vector determines a gain by applying the determined QoS parameter to the signal vector for the undesired signal.

7. The system of claim 6, wherein the weighted vector determines a gain by applying the determined QoS parameter and a direction component of the estimated reception angle of the received signal to signal vectors of undesired signals.

8. The system of claim 5, wherein the undesired signal is at least one of a noise signal and signals of undesired subscribers.

9. The system of claim 1, wherein the weighted vector determines a gain by applying a direction component of the estimated reception angle of a desired signal.

10. The system of claim 1, wherein the weighted vector is calculated by generating at least one signal vector for forming nulls, and at least one signal vector for forming a main lobe.

11. The system of claim 10, wherein the at least one signal vector for forming nulls is a signal vector from at least one undesired signal.

12. The system of claim 10, wherein the at least one signal vector for forming a main lobe is a signal vector from a desired signal.

13. The system of claim 10, wherein the at least one signal vector for forming nulls and the at least one signal vector for forming a main lobe have directions that vary with a system environment and QoS for each subscriber.

14. The system of claim 1, wherein the weighted vector is calculated by an equation,

$$\underline{w}=\left[\sum_{k=1}^{K}\sigma_k\underline{a}(\theta_k)\underline{a}(\theta_k)^H\right]^{-1}\mathrm{E}\left[\sum_{i=1}^{L}\underline{a}(\theta_i)\right],$$

where 'θ' denotes the reception angle, 'σ' denotes the QoS parameter, $\underline{a}(\theta)$ denotes a direction vector of the received signal, 'I' denotes a size of a noise signal, 'K' denotes a number of directions in which null or small gains are desired, 'L' denotes a number of directions for desired signals, and 'H' denotes a Hermitian operator.

15. The system of claim 1, wherein the communication system is a frequency division duplex communication system.

16. The system of claim 1, wherein the weighted vector calculator is configured to calculate a weighted vector that maximizes a gain of a first signal and minimizes a gain of at least one second signal.

17. The system of claim 17, wherein the first signal is a desired transmission signal and the at least one second signal is a noise signal.

18. The system of claim 17, wherein the noise signal is at least one of white noise and an undesired subscriber signal.

19. A method of transmitting a signal in a communication system, comprising:

estimating a reception angle of a received signal;

determining a QoS parameter of the received signal;

calculating a weighted vector using the estimated reception angle and the QoS parameter; and

applying the calculated weighted vector to a signal to be transmitted.

20. The method of claim 19, wherein the QoS parameter is determined in accordance with a QoS required for a subscriber.

21. The method of claim 20, wherein the QoS parameter allocates a relatively large value such that an undesired signal has a gain smaller than a desired signal.

22. The method of claim 21, wherein the QoS adjusts a parameter value by comparing respective QoS parameters to a communication quality.

23. The method of claim 19, wherein the weighted vector is calculated by generating a number of signal vectors of undesired signals and desired signals.

24. The method of claim 23, wherein the weighted vector determines a gain by applying the determined QoS parameter to the signal vector for the undesired signals.

25. The method of claim 24, wherein the weighted vector determines a gain by applying the determined QoS parameter and a direction component of the estimated reception angle of the signal to signal vectors of undesired signals.

26. The method of claim 23, wherein the undesired signal is at least one of a noise signal and reception signals of undesired subscribers.

27. The method of claim 26, wherein the weighted vector determines a gain by applying a direction component of an estimated reception angle of a desired subscriber.

28. The method of claim 27, wherein the reception angle may be estimated from a maximum value of the spatial spectrum.

29. A method of transmitting a signal from a base station, comprising:

estimating a reception angle of a received signal from a first subscriber;

determining a Quality of Service (QoS) parameter for the first subscriber;

transmitting a transmission signal to the first subscriber by increasing a gain in a desired signal direction and decreasing a gain in an interference signal direction in accordance with the estimated reception angle and the QoS parameter.

30. The method of claim 29, wherein increasing the gain results in a maximum gain, and wherein decreasing the gain results in a minimum gain.

31. The me~~thod of claim 29~~, wherein a weighted vector is calculated using the estimated reception angle ~~and the QoS parameter~~, and wherein the weighted vector is applied to the transmission signal ~~to increase~~ the gain in the desired direction and decrease the gain in the undesired direction.

32. The method of claim 31, wherein the weighted vector is calculated to an optimal value wherein the ~~increase in gain results in a~~ maximum gain, and wherein the decrease in gain results in a minimum gain.